

## PATENT CLAIMS

1. A method for detecting a degree of pollution of an operational converter, wherein an operating state of at least one of the converter's components which is exposed to the ambient air of the converter is determined, wherein a corresponding operating state of this component in the unpolluted state is determined, and wherein these two operating states are compared with each other and a comparison value thus determined represents a measure of the degree of pollution of the converter.
2. A method for detecting a degree of pollution of an operational converter, wherein a surface conductance of one of the converter's parts which is exposed to the ambient air of the converter is determined and compared with a predetermined limit value, the comparison value of which represents a measure of the degree of pollution of the converter.
3. The method as claimed in claim 1 or 2, characterized in that the comparison values which are determined are stored.
4. The method as claimed in one of claims 1 to 3, characterized in that a warning signal ( $S_w$ ) is generated when a predetermined comparison value ( $T_{KK\&G1}$ ) is exceeded.
5. The method as claimed in one of the preceding claims, characterized in that a warning message is generated when a second predetermined comparison value ( $T_{KK\&G2}$ ), which is greater than the first comparison value ( $T_{KK\&G1}$ ), is exceeded.
6. The method as claimed in claim 1, characterized in that the operating state of a component of the converter is displayed via its temperature ( $T_{KK}$ ).

7. The method as claimed in claim 1 to 5, characterized in that the operating state of a component of the converter is displayed through its resistance.
8. A device for detecting a degree of pollution of an operational converter, having a thermal model (2) for estimating a temperature ( $T_{KK}$ ) of a heat sink of the converter and having a temperature sensor (4) for determining a heat sink temperature ( $T_{KKmes}$ ) and having an evaluation circuit (6), which is linked on the input side to the thermal model (2) and the temperature sensor (4).
9. A device for detecting a degree of pollution of an operational converter, having a resistor bridge circuit (18) which is linked on the input side to a voltage supply of the converter and whose resistors ( $R_1$ , ...,  $R_4$ ) are dimensioned so that two diagonally opposite resistors ( $R_2$ ,  $R_3$ ) change their resistance by heating as a result of operation, whereas the other two maintain their resistance, and the output of which is linked to an evaluation circuit.
10. A device for detecting a degree of pollution of an operational converter, having two conductor tracks (28, 30) extending close to each other, wherein one is provided with a discharge resistor (24), wherein the other conductor track is linked to a voltage supply of the converter, and wherein a voltage follower (22) is electrically connected in parallel with the discharge resistor (24).
11. The device as claimed in claim 9, characterized in that at least one resistor ( $R_2$ ,  $R_3$ ) of the two resistors ( $R_2$ ,  $R_3$ ) which change their resistance as a result of operation consists of a plurality of electrical resistors connected in series, which are arranged distributed in the converter.